Completed Pollution Prevention Project Case Study

United States Department of Energy
Office of Environmental Management
Fact Sheet

Less Air Pollution from Diesel-Powered Equipment

Los Alamos National Laboratory

Original Problem

The Material Recycling Facility is a semi-enclosed tent-like structure where trash is baled and recyclables are sorted before being sold. A diesel-powered skid-steer loader is used to move materials onto the conveyor belt to the baler. The emissions from the skid-steer loader did not violate air quality standards, but the odors were sometimes unpleasant for the workers at the facility especially on days when the skid-steer loader was started frequently.

The Project Solution

The skid-steer loader was retrofitted with a CleanDIESEL muffler-converter that reduced emissions of air pollutants. A company in Santa Fe called CleanAir Systems manufactured the muffler-converter. Visible smoke was reduced by approximately 30%, carbon monoxide emissions decreased by about 90%, and hydrocarbon emissions were cut by approximately 80%.

Value of Improvement

The employees now have less exposure to air pollutants. Everyone immediately noticed that significantly less smoke was produced when the skid-steer loader was started. The odor that the skid-steer loader usually produced was diminished. The muffler-converter has made the indoor work more pleasant for all of the workers and reduced their exposure to air pollutants.

Lifecycle Waste Reduction	
Lifecycle Waste Reduction	Lower air emissions
Commencement Date	2002
Project Useful Life (Years)	10

DOE Monetary Benefits	
Total Project Cost	$800
Lifecycle Savings	NA
Return on Investment	NA

Benefits At-A-Glance

- The skid-steer loader produces about 30% less visible smoke.
- Emissions of carbon monoxide are about 90% lower than before, and hydrocarbon emissions are about 80% lower.
- The odor produced by the diesel engine's emissions is reduced by the muffler-converter.

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Summary Data	
Priority Area:	Pollution Prevention Projects
Project Type:	Source Reduction
Total Project Cost:	$800
Lifecycle Savings:	NA
Implementing Group:	Material Recycling Facility / Industrial Hygiene and Safety
Benefiting Group:	Material Recycling Facility
Useful Life Years:	Life of the skid-steer loader.
Return on Investment:	NA
Lifecycle Waste Reduction:	~90% less carbon monoxide, ~80% lower hydrocarbon emissions, ~30% less visible smoke.
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